UNIVERSITI TEKNOLOGI MARA

MODELING THE HUMAN CENTERED DESIGN THROUGH HCI CAPABILITY

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Thesis submitted in fulfillment
of the requirement for the degree of
Doctoral of Philosophy

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CONFIRMATION BY PANEL OF EXAMINERS

I certify that a panel of examiners has met on 1st December 2015 to conduct the final examination of Rogayah Abdul Majid on his Doctor of Philosophy thesis entitled "Modeling the Human Centered Design Through HCI Capability" in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The Panel of Examiners recommends that the student be awarded the relevant degree. The panel of Examiners was as follows:

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

The Human Centered Design (HCD) approach rooted in the semi-scientific field of ergonomics was introduced into the software development process to increase the software usability and quality by focusing on the software use and applying human factors/ergonomics and usability knowledge and techniques. In the progress the Human Centered Software Engineering (HCSE) was developed more than a decade ago. HCSE is the framework for integrating the human centered design philosophy and usability engineering into traditional systems development method. Despite its importance, HCD adoption among software practitioners remains low, as reflected in the result of the preliminary study conducted among the Malaysian software development organizations. This research argues that to encourage the HCD adoption among software practitioners a path for HCD adoption needs to be prescribed. This research also argues that an organizational approach and not individual advocates of human-centered design must be used to facilitate the adoption of HCD in systems development. Following this argument of this research embarks on the strategizing of HCD adoption through the development of an adoption model that can inform the readiness of adopting HCD based on technological and organizational capability. The research was carried out in three phases. In the first phase a comprehensive literature analysis on HCD was conducted and the conceptual model has been developed. By integrating HCD from management perspectives into the conceptual model has contributed to the development of an initial model for HCD adoption. This initial model was used as a probe to elicit knowledge of its correctness and suitability with two renown academic experts in HCI. In the next phase the initial model was revised. The integration of the feedback obtained from the first phase with the constructs obtained from adoption and capability maturity models, the HCD Adoption Model has been developed. The HCD Adoption Model prescribes five levels of adoption and the related key processes of each level. This new adoption model later verified through expert reviews with two HCI academic experts and five software development practitioners in the last phase. The novelty of this research lies on its strategy of taking an organizational and managerial perspective of HCD. The main contribution of this research is a new HCD Adoption Model. This new model contributes to the theoretical knowledge of the managerial aspects of HCI. In terms of practical contribution, the HCD Adoption Model will be a useful tool to inform the readiness for adopting HCD in the software development organization.

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